Applying Multiple Intelligences Theory: In Preservice and Inservice TEFL Education Programs

By Mary Ann Christison

My interest in the theory of multiple intelligences (MI) and its application to the second and foreign language classroom began in the early part of this decade. Ever since my first year of teaching in 1970, I have been troubled greatly by the concept of intelligence as a static construct. It didn't seem to make sense when I applied it to my students. My students demonstrated so many different individual strengths and skills, and they were constantly changing, learning, and growing. If someone had asked me to select my most intelligent student, I couldn't have done so. My experiences as an educator were teaching me that intelligence was not just one form of cognition that cut across all human thinking. Rather, intelligence comprised quite possibly different intelligences. It took me almost 20 years to find the theory that supported my beliefs and experiences.

Gardner's theory (1985) proposes different and autonomous intelligence capacities that result in many different ways of knowing, understanding, and learning about our world. As an L2 educator, it has been important for me to get away from defining intelligence in terms of tests and correlations among tests and begin to look more seriously at how people around the world develop skills important to their lives. I am reminded of a wonderful book titled The Education of Little Tree (Carter 1991), which deals with the difference between the skills that are considered intelligent and valued in the Native American Indian culture and the culture of the "white man" in the United States. Both groups valued a different set of skills and judged intelligent behavior in different ways. As Gardner (1993:15) states: It is of the utmost importance that we recognize and nurture all of the varied human intelligences, and all of the combinations of intelligences. We are all so different largely because we all have different combinations of intelligences. If we recognize this, I think we will have at least a better chance of dealing appropriately with the many problems we face in the world.

What Exactly is Intelligence?

There is probably no aspect of contemporary psychology that is more misunderstood by the general public than intelligence. We seem awed by our perception of it in others. The notion of intelligence has a profound effect on one's social status, educational opportunities, and career choices. Even though great importance is attached to intelligence, most of us are unable to define exactly what intelligence is. There is no objective, agreed-upon referent either among the general public or contemporary psychologists. Most commonly, people accept a definition of intelligence that is synonymous with a score on the traditional intelligence test-a test originally designed by

Alfred Binet to predict which youngsters in Parisian primary grades would succeed and which would fail. Binet's discovery became known as the "intelligence test" and has enjoyed great success the world over. Traditional IQ tests predict school performance with considerable accuracy, but they are only an indifferent predictor of performance in a profession after formal schooling (Jencks 1977).

The general public seems to have adopted the theory that intelligence is what an intelligence tests measures (Kail and Pellegrina 1985). A good example is Marilyn Vos Savant, the individual with the world's highest recorded score on this IQ test. She is often referred to as the most intelligent person in the world and, as such, writes a weekly syndicated column called "Ask Marilyn" for many newspapers and magazines in the United States. (Vos Savant 1998). Many people read her column and stand in awe of the logical and precise answers she offers to difficult questions. Whatever intelligence means, Vos Savant is regarded for having lots of it.

There is also confusion within psychology. Part of the confusion surrounding a definition of intelligence within psychology emanates from the fact that there are several psychological perspectives on intelligence. For example, within modern psychology, the term intelligence can be defined in two ways. The first way is to use intelligence to refer to intelligent acts, such as writing a book or designing a new computer. The second way is to use intelligence to refer to mental processes (e.g., analyzing and synthesizing information) that give rise to intelligent acts. At one extreme, there is the proposal that each intelligent act is associated with a unique mental process. The other extreme proposes that a single mental ability underlies all intelligent achievements (Kail and Pellegrina 1985). One view says that, for example, Mozart was born with a specific talent to write his music. Writing music is an intelligent act and Mozart was born with this talent. The other extreme says that Mozart's music was an accident of time and place. In other words, Mozart was in the right place at the right time to develop unique mental processes needed to write his music. Another person could have written what Mozart wrote. Neither extreme view is very attractive.

Gardner's MI theory proposes an alternative definition of intelligence based on a radically different view of the mind. He proposes a pluralistic view of the mind, recognizing many different and discrete facets of cognition and acknowledging that people have different cognitive strengths and contrasting cognitive styles (Gardner 1993:6). This view of intelligence states that some finite set of mental processes gives rise to a full range of intelligent human activities. This intelligence is most completely realized in the process of solving problems and fashioning products in real-life situations.

The problem-solving skill allows one to locate the appropriate route to reach a particular goal. The creation of a cultural product is as crucial to such functions as capturing and transmitting knowledge or expressing one's view or feelings. The problems to be solved range from creating an end for a story to anticipating a mating move in chess to repairing a quilt. Products range from scientific theories to musical compositions to successful political campaigns (Gardner 1993:15).

Defining Multiple Intelligences

Many EFL teachers have questioned me about the relationship between learning styles and multiple intelligences and have asked if they are the same thing. For example, we talk about perceptual learning styles, such as visual and kinesthetic, in almost the same terms as spatial and bodily-kinesthetic intelligences. There is bound to be confusion. Let me offer a short example that might be helpful in sorting out the concepts.

Let's say there are two people who want to develop their musical intelligence. The first person goes to the music store and buys several of his favorite cassettes. He takes them home, listens to them, and then tries to play what he hears. The second person goes to the music store and buys sheet music. She takes the selections home, studies and reads the music, and then sits down to play. Both of these individuals are working to develop their musical intelligence, but they do it in different ways. The preferred learning style for music for the first person is auditory; the preferred learning style for music for the second person is visual. The preferred style may vary from task to task.

MI theory is framed in light of the biological origins. In order to arrive at the list of eight intelligences, Gardner consulted evidence from several different sources. He wanted to make a clear distinction between an intelligence with its biological origins and a talent or skill. He was being purposely provocative in his choice of words. He identified the following basic criteria that each intelligence must meet to be considered an intelligence.

Brain damage studies. When people suffer brain damage as a result of an injury, one intelligence is often damaged. For example, if a person has damage to Broca's area (the left frontal lobe), linguistic intelligence may be greatly damaged. The individual may have great trouble reading, writing, and speaking, yet still be able to do math, dance, and sing. Gardner is actually proposing the existence of eight autonomous brain systems. His premise is that because a person can lose ability in one area while others are spared, there cannot simply be a single intelligence.

Exceptional individuals. In some people, we can see intelligences operating at high levels. Some individuals can calculate multidigit numbers in their heads or can play a musical composition after hearing it only once. Savants are people who demonstrate amazing abilities in one intelligence while other intelligences are very low.

Developmental history. Each intelligence has its own developmental history-its time of arising in childhood, its time of peaking during one's lifetime, and its time of gradual decline. Musical intelligence, for example, peaks early, but linguistic intelligence can peak very late.

Evolutionary history. Each intelligence has roots in the evolutionary history of man. For example, archaeological evidence supports the presence of early musical instruments. The cave drawings of Lascaux are good examples of spatial intelligence.

Psychometric findings. We can look at many existing standardized tests for support of the theory of multiple intelligences. The Weschsler Intelligence Scale for Children includes subtests that focus on several of the different intelligences.

Psychological tasks. We can look at psychological studies and witness intelligences working separately. For example, subjects may master a specific skill, such as solving arithmetic problems, but they may still not be able to read well. Also, individuals may have a superior memory for words but not for faces. The tasks seem to be independent from each other.

Core operations. Each intelligence has a set of core operations. For example, with musical intelligence, a person needs to be able to discriminate rhythmic structures and be sensitive to pitch.

Symbol system. Intelligences are susceptible to being symbolized. For example, there are spoken and written languages, graphic languages, computer languages, musical notation systems, and ideographic languages.

Only those intelligences that have satisfied all or a majority of the criteria mentioned above were selected as bona fide intelligences (Gardner 1985).

What are the Eight Intelligences?

Having sketched the criteria for an intelligence, Gardner identified seven intelligences and has since added an eighth. The list is not meant to be final or exhaustive. The point is not the exact number of intelligences, but simply the plurality of the intellect. Each person has raw biological potential. We differ in the particular intelligence profiles with which we are born and the ways in which we develop them. Weinreich-Haste (1985) claims that many people are surprised at some of the intelligence categories that Gardner has chosen because they never think of these areas as being related to "intelligence." They think of the categories more as talents or aptitudes.

Bodily-kinesthetic intelligence: the ability to use the body to express ideas and feelings and to solve problems. This includes such physical skills as coordination, flexibility, speed, and balance. You can help your students develop their bodily-kinesthetic intelligence by providing opportunities for physical challenges during the second/foreign language lesson.

Intrapersonal intelligence: the ability to understand yourself-your strengths, weaknesses, moods, desires, and intentions. This includes such skills as understanding how you are similar to or different from others, reminding yourself to do something, knowing about yourself as a language learner, and knowing how to handle your feelings, such as what to do and how to behave when you are angry or sad. You can help EFL students develop intrapersonal intelligence by letting them express their own preferences and help them understand their own styles of learning.

Interpersonal intelligence: the ability to understand another person's moods, feelings, motivations, and intentions. This includes such skills as responding effectively to other people in some pragmatic way, such as getting students or colleagues to participate in a proj-ect. As an EFL teacher you can help students develop interpersonal intelligence through activities that involve them in solving problems and resolving conflict.

Linguistic intelligence: the ability to use words effectively both orally and in writing. This intelligence includes such skills as the abilities to remember information, to convince others to help you, and to talk about language itself. You can help students develop linguistic intelligence by creating a rich print environment; by providing things to look at, listen to, and write about; and by creating many opportunities for interaction among students and between the teacher and the students.

Logical-mathematical intelligence: the ability to use numbers effectively and reason well. This includes such skills as understanding the basic properties of numbers and principles of cause and effect, as well as the ability to predict, using simple machines. You can help students develop logical-mathematical intelligence by providing manipulatives for experimentation with numbers and by using simple machines or computer programs to help children think about cause and effect.

Musical intelligence: the ability to sense rhythm, pitch, and melody. This includes such skills as the ability to recognize simple songs and to vary speed, tempo, and rhythm in simple melodies. You can help students develop musical intelligence by using tape recorders for listening, singing along, and learning new songs.

Spatial intelligence: the ability to sense form, space, color, line, and shape. It includes the ability to graphically represent visual or spatial ideas. You can help students develop spatial/visual intelligence by providing many opportunities for visual mapping activities and encouraging students to vary the arrangements of materials in space, such as by creating charts and bulletin boards.

Naturalist intelligence: the ability to recognize and classify plants, minerals, and animals, including rocks and grass, and all variety of flora and fauna. It is also the ability to recognize cultural artifacts like cars or sneakers. You can help your students develop their naturalist intelligence by focusing their attention on the world outside the classroom.

Implications of MI Theory for Foreign Language Education

The theory of multiple intelligences was developed first as an account of human cognition that could be subjected to empirical tests. When Gardner wrote *Frames of Mind* , he believed that his work would be of interest chiefly to persons trained in his discipline of developmental psychology. Yet *Frames of Mind* did not arouse much interest within the discipline of developmental psychology; most developmental psychologists ignored it. The reception among educators, however, was quite different. The theory of multiple intelligences seems to harbor a number of educat-ional implications that are worthy of consideration. Armstrong (1994) has synthesized these ideas into four key points that educators find attractive about the theory.

1. *Each person possesses all eight intelligences.* In each person the eight intelligences function together in unique ways. Some people have high levels of functioning in all or most of the eight intelligences; a few people lack most of the rudimentary aspects of

intelligence. Most people are somewhere in the middle, with a few intelligences highly developed, most modestly developed, and one or two underdeveloped.

2. *Intelligences can be developed.* Gardner suggests that everyone has the capacity to develop all eight intelligences to a reasonably high level of performance with appropriate encouragement, enrichment, and instruction.
3. *Intelligences work together in complex ways.* No intelligence really exists by itself in life. Intelligences are always interacting with each other. For example, to cook a meal, one must read a recipe (linguistic), perhaps double it (logical-mathematical), and prepare a menu that satisfies others you may cook for (interpersonal) and yourself (intrapersonal).
4. *There are many different ways to be intelligent.* There is no standard set of attributes that one must have in order to be considered intelligent. I remember a friend in high school who was completely awkward in the dance class and yet a marvel in building construction. Both activities required bodily- kinesthetic intelligence.

Howard Gardner was not designing a curriculum or preparing a model to be used in schools with his multiple intelligence theory (Hoerr 1997). Educators have taken the theory, put it together in different ways, and applied it to their lesson planning and program and curriculum development. The key points given above are all useful to the English language teaching profession. They help us understand the diversity we observe in our students and provide a framework for addressing these differences in our teaching.

Integrating MI Theory in TEFL Teacher Education Programs

EFL teacher educators are responsible for creating curricula for the programs that provide prospective EFL teachers with a foundation for what they should know as professional language teachers. Much of what we include in TEFL programs is based on academic tradition. EFL teachers are expected to know about methods, testing, theory, teaching grammar, reading, speaking, listening, and so forth. Most teacher education programs include courses in all of these subject areas. Teacher education programs are also expected to keep current by introducing teachers to the newest and most creative ideas in second language pedagogy. When new concepts and ideas are embraced by the profession, teacher education programs are challenged with integrating them into existing programs.

Few theories have been embraced more enthusiastically by EFL teachers in the past few years than Gardner's theory of multiple intelligences. We have seen more papers being written on the topic (Reid 1997; Christison 1997, 1998) and more workshops and papers being offered at conferences (see TESOL '97, Orlando, Florida, U.S.A.; American Language Centers '97 Conference, Marrakech, Morocco; TESOL Argentina 1997 Convention, Buenos Aires, Argentina). As EFL teacher educators, we want information and resources about the theory; we want to know how to help teachers apply it in the classroom.

Applying Multiple Intelligences Theory

MI theory offers EFL teachers a way to examine their best teaching techniques and strategies in light of human differences. There are several important steps to follow in introducing the theory to teachers in either inservice or preservice programs.

Step 1: Introduce the basic theory. Use a simple, interesting, and unique way to introduce MI theory. Before you start talking about the details, it's important to capture the teachers' attention and spark their interest. I have had success with an adaptation of the familiar EFL activity, "Find Someone Who" (see Figure 1). The idea is to include activities on the list that represent each of the eight intelligences. The follow-up discussion should focus on the different intelligences needed to complete the activity (e.g., *likes to dance* -bodily-kinesthetic; *will sing part of a favorite song* -musical). There are many possibilities once you start to use your imagination. Armstrong (1994) suggests a version of "Find Someone Who" called "The Human Intelligence Hunt." His list includes only eight actions-one for each intelligence. The person whose signature you obtain must actually perform the action to your satisfaction. He also suggests the "Multiple Intelligence Pizza" for young children. The instructor draws a circle on the board and divides it into eight pieces. The instructor then asks the students to tell her the different ways in which a person can be smart (i.e., music smart, word smart, body smart, number smart, nature smart, etc.).

Step 2: Use an MI inventory. Armstrong (1994) believes that before teachers apply a model of learning in the classroom, they should apply it to themselves as educators first. Therefore, the next step in helping teachers apply MI theory in the classroom is to help them determine their own multiple intelligence profile. If the teachers you are working with have not taken an MI inventory recently, or if you have never taken one, I encourage you to take a few minutes and allow them to do it in the class or workshop. An MI inventory I wrote for EFL teachers is included in Appendix A below.

Once teachers learn more about their own multiple intelligence profile, they will become more confident in the choices they make that affect their teaching. The purpose of taking an MI inventory is to connect one's life experiences to the ideas presented in multiple intelligence theory. The types of learning activities teachers select are often directly related to their experiences in the real world. The choices they make as teachers, in turn, can affect the multiple intelligence profiles of the EFL students in their classes. As an EFL teacher educator, you also naturally choose classroom activities that complement your own multiple intelligence profile. There is nothing wrong with this. It is best to make informed choices about the chosen activities in the lessons you recreate. Language students and language teachers benefit from instructional approaches that help them reflect on their own learning (Marzano et al. 1988).

Step 3: Categorize familiar EFL activities. In order to begin lesson planning, it is important for teachers to be able to identify the activities they would normally use in their lessons and identify the intelligences the activities represent. There are a number of ways you might do this. Campbell (1997) suggests menus, asking the teachers to identify their linguistic menu, logical-mathematical menu, musical menu, and so forth, for each lesson. I often use the format in Figure 2 for a mix-and-mingle activity. I write the activities on separate strips of paper. Then I tape the intelligence categories on the walls around the room (e.g., linguistic intelligence, logical-mathematical intelligence, spatial intelligence). The teachers are then given several activity strips

and asked to make decisions about where they belong. Once all the activities have been placed, I conduct a large group discussion. Many of the activities support more than one intelligence, so there is usually a bit of controversy in the discussion. The activity is an excellent preparation for looking at activity types within one's own lesson plans.

Step 4: Conduct a personal audit of teaching strategies. I have found this activity very helpful in applying multiple intelligence theory in my own classrooms. I use this same technique in my teacher education courses and workshops. The activity is reflective in nature and requires that teachers look at the activities they typically include in their lessons. The activities are then categorized according to the different intelligences, using the chart in Figure 3.

When I reviewed the results from one of my own classes, I was surprised. I found that during the two-week period, I did not use any activities in my classes that focused on the students' logical-mathematical intelligence or their musical intelligence. There are several things I could have done with this information. I could have simply considered the information interesting and taken no action to change, or I could have used the information to explore other ways of introducing new information and planning my lessons. As a result, I made a decision to do the latter. I tried to think of ways to include these two intelligences in my language teaching.

In order to include opportunities for students to develop their musical intelligence, I taught my students the tunes and words to two very simple folk songs, "Skip to My Lou" and "Down in the Valley." They enjoyed singing very much. In a later lesson, I asked students to work in groups, take the information from the chapter, write a simple verse, and put the words to one of the tunes that I had previously taught them. The students seemed to enjoy the activity very much. Most of the student groups performed the new songs for the entire class. They also commented to me later that the technique made it easy to remember the content. Trying this new activity felt like a big risk for me. However, when I saw how much my students learned from each other, how much they interacted and used English, how much they seemed to enjoy it, and how successful they felt about the activity, I was glad that I had taken the risk. It was my choice to explore additional possibilities in my lesson planning.

The above activity is an excellent example of how MI theory informed language teaching and learning in my classroom. My decisions about activities as they relate to MI theory were made by choice and not by accident. This is the point I try to get across to the teachers in my own preservice and inservice courses.

Step 5: Develop different assessment techniques that also address the eight intelligences. The best way for teachers in inservice and preservice courses to learn about MI theory is for them to experience using as many of the techniques as they can in the teacher education course. Not only should teachers be concerned with multiple intelligences in their lesson plans, they should also be concerned with multiple intelligences in the assessment techniques they employ. For example, you are familiar with the concept of giving short pen-and-paper quizzes as self-tests. These quizzes are designed to help teachers reflect on the materials that they have presented. Instead of using the pen-and-paper method, I use the same information and create a "Find Your Partner" activity. The left-hand side of Figure 4 contains some sample questions that I might give after the first introductory course on MI theory. Rather than simply hand out the questions and have the

students answer them, I give half of the class the questions and half of the class the answers. Then they are asked to find their partner. By changing the focus of the assessment component, you can expand on the number of intelligences that are being developed in the lesson. Pen-and-paper assessment techniques work to develop the linguistic intelligence. The "Find Your Partner" version uses the bodily-kinesthetic intelligence as well as the interpersonal intelligence.

I realize that no two teacher educators who read this article will use MI theory in exactly the same way. Some teacher educators will use MI theory as an entry point into lesson content. Others will attempt to engage all eight intelligences in their lessons. There is no single correct answer or road to follow. What is important for you as a teacher educator is to understand the theory and your own MI profile. It is also important to know how MI theory informs your own teaching. Once you understand this concept, then you can consciously apply the theory to your lesson planning and curriculum development. It takes patience, time, imagination, and creativity to bring a new theory into one's teaching. I believe that if we all work from our own personal strengths, we will be effective teacher educators. The growth you witness in preservice and inservice teachers will be surprising. The rewards are worth the effort.

If we can mobilize the spectrum of human abilities, not only will people feel better about themselves and more competent, they may also feel more engaged and better able to join the rest of the world community in working for the broader good. Perhaps if we can mobilize the full range of human intelligences and ally them to an ethical sense, we can help to increase the likelihood of our survival on this planet and perhaps even contribute to our thriving (Gardner 1993:15).

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Appendix A

Multiple Intelligences Inventory for ESL Teachers

Directions: Rank each statement below 0, 1, or 2. Write 0 next to the number if the statement is not true. Write 2 in the blank if you strongly agree with the statement. A score of 1 places you somewhere in between. Compare your scores in different intelligences. What is your multiple intelligence profile? Where did you score highest? lowest?

Linguistic Intelligence

1. I write and publish articles.

2. I read something almost every day that isn't related to my work.
3. I pay attention to billboards and advertisements.
4. I often listen to the radio and cassette tapes of lectures and books.
5. I enjoy doing crossword puzzles.
6. I use the blackboard, the overhead projector, or charts and posters when I teach.
7. I consider myself a good letter writer.
8. If I hear a song a few times, I can usually remember the words.
9. I often ask my students to read and write in my classes.
10. I have written something that I like.

Musical Intelligence

1. I have no trouble identifying or following a beat.
2. When I hear a piece of music, I can easily harmonize with it.
3. I can tell if someone is singing off-key.
4. I have a very expressive voice that varies in intensity, pitch, and emphasis.
5. I often use chants and music in my lessons.
6. I play a musical instrument.
7. I listen to music frequently in the car, at work, or at home.
8. I know the tunes to many songs.
9. I often hum or whistle a tune when I am alone or in an environment where I feel comfortable.
10. Listening to music I like makes me feel better.

Logical-Mathematical Intelligence

1. I feel more comfortable believing an answer is correct if it can be measured or calculated.

2. I can calculate numbers easily in my head.
3. I like playing card games such as hearts, gin rummy, and bridge.
4. I enjoyed math classes in school.
5. I believe that most things are logical and rational.
6. I like brain-teaser games.
7. I am interested in new developments in science.
8. When I cook, I measure things exactly.
9. I use problem-solving activities in my classes.
10. My classes are very consistent; my students know what to expect.

Spatial Intelligence

1. I pay attention to the colors I wear.
2. I take lots of photographs.
3. I like to draw.
4. I especially like to read articles and books with many pictures.
5. I am partial to textbooks with illustrations, graphs, and charts.
6. It is easy for me to find my way around in unfamiliar cities.
7. I use slides and pictures frequently in my lessons.
8. I enjoy doing puzzles and mazes.
9. I was good at geometry in school.
10. When I enter a classroom, I notice whether the positioning of the students and teacher supports the learning process.

Bodily-Kinesthetic Intelligence

1. I like to go for long walks.
2. I like to dance.
3. I engage in at least one sport.
4. I like to do things with my hands such as carve, sew, weave, build

models, or knit.
5. I find it helpful to practice a new skill rather than read about it.
6. I often get my best ideas when I am jogging, walking, vacuuming, or doing something physical.
7. I love doing things in the outdoors.
8. I find it hard to sit for long periods of time.
9. I often do activities in my classes that require the students to move about.
10. Most of my hobbies involve a physical activity of some sort.

Intrapersonal Intelligence

1. I regularly spend time meditating.
2. I consider myself independent.
3. I keep a journal and record my thoughts.
4. I would rather create my own lessons than use material directly from the book.
5. I frequently create new activities and materials for my classes.
6. When I get hurt or disappointed, I bounce back quickly.
7. I articulate the main values that govern my life and describe the activities that I regularly participate in that are consistent with these values.
8. I have hobbies or interests that I enjoy doing on my own.
9. I frequently choose activities in the classroom for my students to work on alone or independently.
10. I encourage quiet time and time to reflect in my classes.

Interpersonal Intelligence

1. I prefer going to a party rather than staying home alone.

2. When I have problems, I like to discuss them with friends.
3. People often come to me with their problems.
4. I am involved in social activities several nights a week.
5. I like to entertain friends and have parties.
6. I consider myself a leader and often assume leadership roles.
7. I love to teach and show someone how to do something.
8. I have more than one close friend.
9. I am comfortable in a crowd or at a party with many people I don't know.
10. My students help decide on the content and learning process in my classes.

Naturalist Intelligence

1. I am good at recognizing different types of birds.
2. I am good at recognizing different types of plants.
3. I like to garden.
4. I enjoy having pets.
5. It's easy for me to tell the make and year of most cars.
6. I often look at the sky and can tell you the different types of clouds and what kind of weather they bring.
7. It's easy for me to tell the weeds from the plants.
8. I like to spend time in the outdoors.
9. I enjoy learning about rocks.
10. I have plants in my home and office.